Human monocyte chemoattractant protein-1 (MCP-1). Full-length cDNA cloning, expression in mitogen-stimulated blood mononuclear leukocytes, and sequence similarity to mouse competence gene JE.

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The purpose of this work was to analyze cDNA encoding human monocyte chemoattractant protein-1 (MCP-1), previously isolated from glioma cell line culture fluid. Screening of a cDNA library from total poly(A) RNA of glioma cell line U-105MG yielded a clone that coded for the entire MCP-1. Nucleotide sequence analysis and comparison with the amino acid sequence of purified MCP-1 showed that the cDNA clone comprises a 53-nucleotide 5'-non-coding region, an open reading frame coding for a 99-residue protein of which the last 76 residues correspond exactly to pure MCP-1, and a 389-nucleotide 3'-untranslated region. The hydrophobicity of the first 23 residues is typical of a signal peptide. Southern blot analysis of human and animal genomic DNA showed that there is a single MCP-1 gene, which is conserved in several primates. MCP-1 mRNA was induced in human peripheral blood mononuclear leukocytes (PBMNLs) by PHA, LPS and IL-1, but not by IL-2, TNF, or IFN-gamma. Among proteins with similar sequences, the coding regions of MCP-1 and mouse JE show 68% identity. This suggest that MCP-1 is the human homologue of the mouse competence gene JE.

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specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claim 2, sections (e) and (g), is overly broad in the recitation of "95% identity" since no guidance is provided as to which of the myriad of polynucleotide species encompassed by the claim will encode polypeptides that will retain the characteristics of a human TWIK1 polypeptide comprising SEQ ID NO:2. In the specification (page 13, line 38 to page 14, line 4), Applicants disclose that variants of the polypeptide can be generated by conservative or nonconservative changes, without disclosing any actual or prophetic examples on expected performance parameters of any of the possible muteins of human TWIK1 polypeptide. There is no guidance provided in the specification as to how one of ordinary skill in the art would generate a nucleic acid sequence encoding a human TWIK1 polypeptide other than those exemplified in the specification. See In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404. The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. The factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to: (1) the breadth of the claims; (2) the nature of the invention; (3) the state of the prior art; (4) the level of one of ordinary skill; (5) the level of predictability in the art; (6) the amount of direction provided by the inventor; (7) the existence of working examples; and (8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. Given the breadth of claim 52 in light of the predictability of the art as determined by the number